Multi-Platform Sensor Surveillance Network for Range Control, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

Prioria (Gainesville, FL) and its partners Aerial Products (Deland, FL) and Meridian Systems LLC (Titusville, FL) propose to develop a revolutionary new type of system which is both modular and standardized, and which can effectively interface with existing sensors such as range radar and acoustic intrusion detectors. The system for launch surveillance/intrusion detection is based on a network of uncooled long wavelength infrared (LWIR) imagers with associated Global Positioning System (GPS) sensors and magnetic compass heading indicators, integrated into a small package which can be deployed on small unmanned aerial vehicles (UAV), balloons or blimps, and fixed towers. Infrared imagers are chosen for their day/night and all-weather capability and because recent advances in uncooled technology has allowed the price of these sensors to become low enough for fielding a relatively large number of imagers in a cost effective manner. These LWIR sensors and integrated instrumentation will provide for the remote detection, recognition, and identification of persons and objects that have intruded into areas of the range that must be cleared in order to conduct safe launch operations. In order to achieve accurate identification, the time and position of potential intrusions will be recorded in a "track file" for each detection incidence. Data fusion techniques will fuse tracks from various sensors into a single track when possible, and objects will be tracked with multi-target tracking techniques as necessary. This will require the use of encrypted communication, so track data and associated intruder imagery from individual sensors can be combined at a centralized control station as a fused track file. In the cases where intrusions are deemed security risks, further action can be undertaken, such as deployment of a small UAV to the intrusion site for real time observation, while range control and security evaluate the situation.

Anticipated Benefits

Potential NASA Commercial Applications: Both the proposed system in entirety and the constituent innovations have non-NASA commercialization potential. The largest potential customer is the U.S. Government, and the individual innovations produced in this proposal can give Prioria and partners a significant competitive advantage with this customer. In light of the intense competition in the UAV market, the importance of this competitive advantage cannot be understated. A list of non-NASA commercialization opportunities and more details are provided in Sect. 10.2.

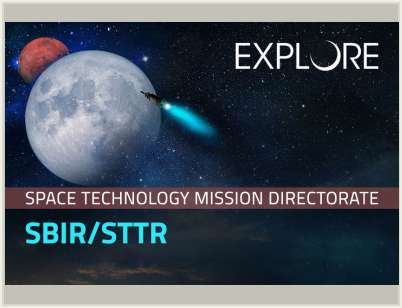

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Table of Contents

Project Introduction	1
Anticipated Benefits	1
Primary U.S. Work Locations and Key Partners	2
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3

Small Business Innovation Research/Small Business Tech Transfer

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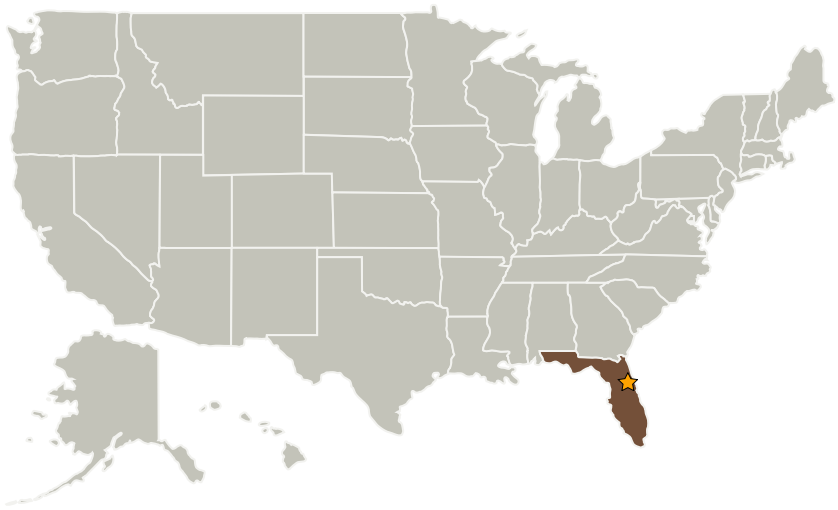
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
Prioria, Inc.	Supporting Organization	Industry	Gainesville, Florida

Primary U.S. Work Locations
Florida

Project Transitions

January 2009: Project Start

July 2009: Closed out

Closeout Summary: Multi-Platform Sensor Surveillance Network for Range Control, Phase I Project Image

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Kennedy Space Center (KSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

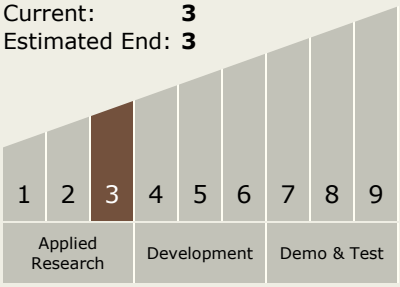
Carlos Torrez

Principal Investigator:

Walter L Hunt

Technology Maturity (TRL)

Start: **3**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.5 Range Tracking, Surveillance, and Flight Safety Technologies